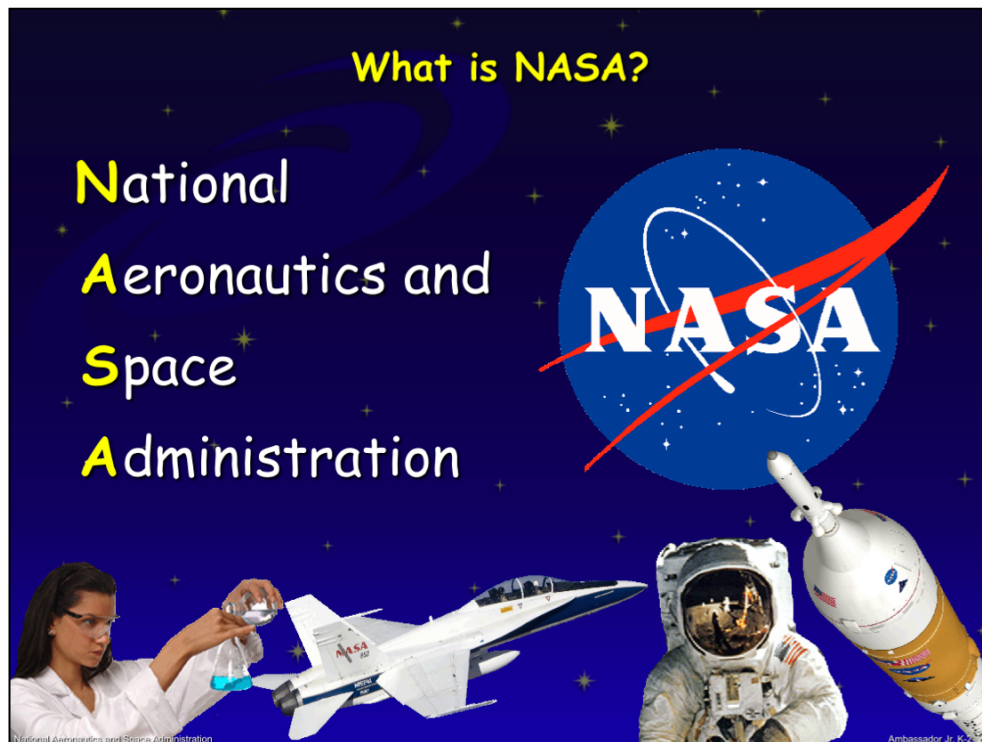




- Thank you for inviting me to speak to your group. I would like to share with you some of the exciting things being done by NASA.



- What Is NASA?

NASA stands for National Aeronautics and Space Administration.

NASA was started in 1958 as a part of the United States government.

NASA is in charge of U.S. science and technology that has to do with airplanes or space.

- What Does NASA Do?

NASA does a lot of different things. NASA makes satellites. The satellites help scientists learn more about Earth.

NASA sends probes out into space. NASA scientists study things in the solar system, and even farther away.

A new program will send humans to the moon, Mars and beyond. People at NASA work on ways to make air travel better for everyone on Earth, too.

People at NASA also share the things they learn with others. This can help make life on Earth better.

- The meatball design of the NASA logo is a sphere and represents a planet. The red wing represents aeronautics. The stars represent space.



Let's take a look at our Solar System.

The Solar System is made up of all the planets that orbit our Sun. In addition to planets, the Solar System also consists of moons, comets, asteroids, minor planets, and dust and gas.

Everything in the Solar System orbits or revolves around the **Sun**. The Sun is a star. The Sun contains around 98% of all the material in the Solar System.

The larger an object is, the more gravity it has. Because the Sun is so large, its powerful gravity attracts all the other objects in the Solar System towards it.

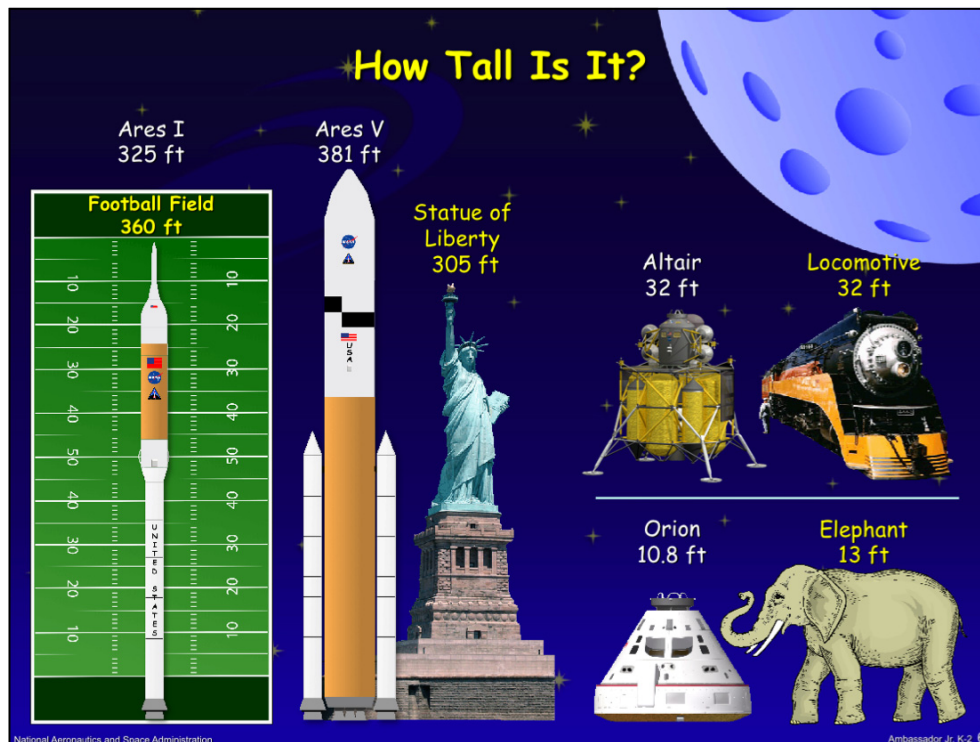
- **Mercury** is the closest planet to the Sun and the smallest planet in the solar system.
- **Venus** is the second planet from the sun. Venus and Earth are similar in size. Venus is unusual because it rotates in a direction opposite that of all of the other planets.
- **Earth** is our home planet and is the third planet from the sun. It is the only planet known to support life. The Earth is made up of 71% water. Earth has one moon.
- **Mars** is the fourth planet from the sun. Mars is often called the "Red Planet" because that is its color.
- **Jupiter** is the fifth planet from the sun. It is the largest planet in the solar system. Jupiter is made mostly of gases.
- **Saturn** is the largest planet in our solar system. Because it is so big people can see it without a telescope. Saturn has rings and 18 moons.
- **Uranus** is the seventh planet from the sun. It takes Uranus 84 years to orbit the sun one time.
- **Neptune** is the eighth planet from the sun. Neptune is blue in color because its atmosphere is mainly made of methane gas.



- How far is the Moon from Earth?
- Discuss the following with the class: If the Earth was the size of a basketball, the Moon would be the size of a tennis ball. How far away do you think they would be from each other?
- Ask for a volunteer to take the tennis ball (Moon) and go to a spot in the classroom that they think is the correct distance the Moon is from Earth. After the child has chosen a spot, take a piece of string and wrap it around the basketball 9 ½ times to represent the distance from Earth to the Moon. Unwrap the string one time around and then stop and hold that part of string out away from the basketball. This is the distance where most communication satellites are located. Keep unwinding the string. Ask one person to hold the basketball. Keeping one end of the string on the basketball, keep unwinding the string. See how close the student came to the actual distance.
- The Moon is 240,000 miles from Earth. The Earth's circumference is 23,627 miles or about 24,000 miles and the average distance between the Earth and the Moon is 238,900 or about 240,000 miles. The Moon is about 30 times the diameter of the Earth.



- The journey to the Moon will require a variety of vehicles, including the Ares I crew launch vehicle, the Ares V cargo launch vehicle, the Orion crew exploration vehicle, and a lunar lander.
- The architecture for lunar missions will use two launches, with the Ares V transporting the lunar lander and the Earth Departure Stage (EDS), followed by Ares I transporting the crew.



Ares I:

- The Ares I rocket will stand tall at 325 feet. It is almost the same size as a standard football field minus one end zone and five feet.

Ares V:

- The Ares V is 381 feet tall. It will be the largest launch vehicle ever built. The Saturn V was 363 feet tall. The Ares V is 76 feet taller than the Statue of Liberty which is 305 feet tall.

Lunar Lander:

- The Lunar Lander is 32 feet tall and about the same height as a locomotive train. A locomotive train stands at 32 feet tall.

Orion:

- The Orion Crew Vehicle is 10.8 feet tall. The average size of an elephant is 13 feet tall, so the Orion is close to the size of an elephant.



Now we are looking at the near side of the Moon. Can you count how many yellow squares you see? (6) There are six squares and they represent where we have been on the Moon with the Apollo Missions.

The red circles are possible landing sites we could explore when we return to the Moon.

- Why do we want to explore the Moon again? Haven't we already been there? Well, imagine you live on Planet X and travel to Earth. You land right in the middle of the Sahara Desert and you go a mile to the north, south, east and west. You say, "Well, we have seen all of Earth."
- If you look at the picture, you can see that the yellow squares are where we have been on the Moon with the Apollo Missions. The red circles are possible landing sites. With the Apollo missions, the exploration was near the equator, but now we can explore the poles. What about the far side of the Moon? (click to turn the Moon around) We have never explored the far side of the Moon. When we return to the Moon, we have the possibility of seeing both sides of the Moon.



- This video shows how all these pieces will fit together in a lunar mission.



- There are a variety of career opportunities available at NASA. NASA employs people from all walks of life. Not only are there engineers, mathematicians, scientists and technicians, but NASA also has accountants, historians, writers, computer support people, project managers, artists, educators, human resources personnel, public relations managers, physicians, lawyers -- and more.
- The most important thing for preparing to find a job at NASA is that you study what you like and work hard to achieve your goals.

